

Bellringer

→ What are Newton's 3 Laws of Motion?

inertia, $F = ma$, = @ rest and opposite

→ A book, that is 29g is being accelerated @ 4 m/s^2 . What is the force of the book?

* challenge *

$$N = \frac{\text{kg} \cdot \text{m/s}^2}{\frac{\text{kg} \cdot \text{m}}{\text{s}^2}}$$

$$W = F \cdot d$$

$$29g \rightarrow \text{kg}$$

$$0.29 \text{ kg}$$

$$0.29 \text{ kg} (4) = F$$

Miller-Urey ExperimentBellringer

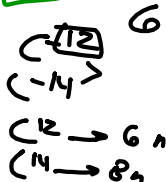
→ How old is the Earth? How do you know?

4.6 billion years

→ How do we know what happened in Earth's past?

Fossils → Rocks [Geology]

H₂O

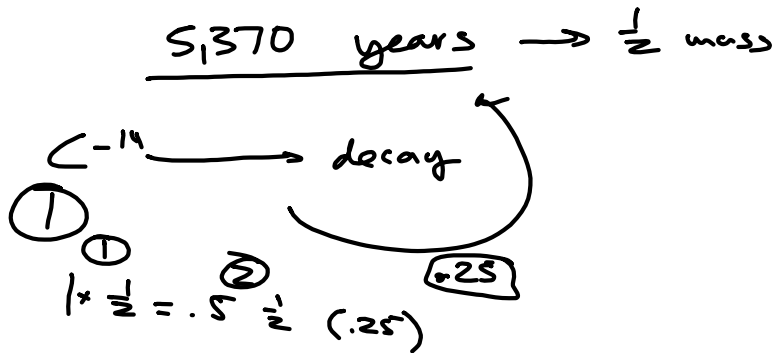


proton: $+$
neutron: 0
electron: $-$

Have mass
no mass

Matter

Atoms of Elements



Thermal Energy Review (Part 1)

Grade: 8th
 Subject: Physical Science
 Date:

Thermal Energy

- 1 ~~Temperature~~ is the sum of the kinetic energy and potential energy of the particles that make up a material.

True

False

- 2 Heat is the movement of thermal energy from a warmer object to a cooler object.

3 In terms of SI units, temperature is measured in Celsius.

True

False

Kelvin

4 There is no difference between heat and temperature.

True

False

5 Which increases the kinetic energy of the particles that make up a bowl of soup?

A dividing the soup in half

B putting the soup in a refrigerator

☒ C heating the soup for 1 min on a stove

D decreasing the distance between the particles that make up the soup

6 The boiling point of maple syrup is 104 degrees Celsius. What is the boiling point of maple syrup in Fahrenheit?

- 7 The sum of kinetic energy and potential energy of the particles in a material is _____ energy.

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→ How does a thermostat work?

bimetallic coil

→ Describe the three methods of heat transfer.



→ Explain how thermal expansion and contraction work.

cool

Bellringer

- What is temperature?
average kinetic energy
- How is heat transferred from one object to another?

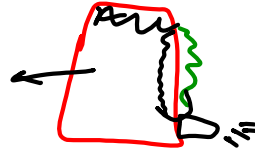
Radiation Radiant

Conduction → objects touching

Convection  → transfer of heat through a fluid

Discussion Questions:

- How does a refrigerator work?
- What are all of the energy transfers that occur when an engine in a car is used?



Thermal Energy (part 2)

Grade: 8th

Subject: Physical Science

Date:

- 1 A device that converts electrical energy into thermal energy is called a _____.

heating appliance

~~thermostat~~ ^{refrigerator}
2 A ~~thermostat~~ is a device that uses electrical energy to transfer thermal energy from a cooler location to a warmer location.

True

False

3 Which sequence describes the energy transformation in an automobile engine?

- A chemical-thermal-~~potential~~ ^{mechanical}
- B thermal-kinetic-potential
- C thermal-mechanical-potential
- D thermal-chemical-mechanical

4 Thermal energy transfered through ~~convection~~^{conduction} occurs when an material with higher kinetic energy transfers its kinetic energy to an object with lower kinetic energy.

True

False

5 A typical automobile engine is a "heat engine".

True

False

6 The transfer of energy from one material to another by electromagnetic waves is called _____.

radiation

7 _____ is the transfer of thermal energy from one part of a fluid to another.

Convection

8 If a water bath is at 104 degrees Fahrenheit, then what is the temperature of the water in degrees Celsius?

40

$$C = \frac{5}{9} (F - 32)$$

$$: \quad / \quad / - 100^{\circ}$$

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- What is "lost" with every energy transformation?
- What is a "simple" machine? What are the 6 simple machines?

Bonus: → What is a "Rube Goldberg" device?